

CLAIM LISTING

1. (Currently amended) An apparatus for aligning and fixing an optical fibre relative to an optical source, comprising:

first and second fixing brackets, each fixing bracket including:

a support member for attachment to a substrate;

first and second cantilever arms extending from the support member in opposing directions, each cantilever arm including fibre engagement means for engaging with the optical fibre and cantilevered to engage the engagement means with the optical fibre; and

the apparatus further comprising a substrate including support means for receiving the support members so as to dispose the first and second fixing brackets such that the fibre engagement means of the first fixing bracket oppose the fibre engagement means of the second fixing bracket, for receiving and supporting an optical fibre therebetween at two longitudinal positions of the optical fibre.

2. (Original) The apparatus of claim 1 in which the first and second cantilever arms are of unequal length.

3. (Original) The apparatus of claim 2 in which the first cantilever arms are at least five times as long as the second cantilever arms.

4. (Currently amended) ~~The apparatus of claim 2 in which the~~ An apparatus for aligning and fixing an optical fibre relative to an optical source, comprising:

first and second fixing brackets, each fixing bracket including;

a support member for attachment to a substrate;

first and second cantilever arms ~~having~~ have different cross-sectional areas and extending from the support member in opposing directions, each cantilever arm including fibre engagement means for engaging with the optical fibre, and

the apparatus further comprising a substrate including support means for receiving the support members so as to dispose the first and second fixing brackets such that the fibre engagement means of the first fixing bracket oppose the fibre engagement means of the second fixing bracket, for receiving and supporting an optical fibre therebetween at two longitudinal positions of the optical fibre.

5. (Original) The apparatus of claim 4 in which the second cantilever arm has a greater cross-sectional area than the first cantilever arm.

6. (Previously presented) The apparatus of Claim 1 in which the cantilever arms have a rectangular cross-section.

7. (Previously presented) The apparatus Claim 1 in which at least one of the cantilever arms has varying cross-sectional area along its length.

8. (Original) The apparatus of claim 7 in which the at least one cantilever arm has a tapering cross-sectional area along its length.

9. (Original) The apparatus of claim 7 in which the at least one cantilever arm has a step change in cross-sectional area along its length.

10. (Original) The apparatus of claim 1 in which the support members each comprise a channel running therethrough.

11. (Original) The apparatus of claim 10 in which the channel runs substantially orthogonal to an axis extending between the fibre engagement means.

12. (Currently Amended) An apparatus for aligning and fixing an optical fibre relative to an optical source, comprising:

first and second fixing brackets, each fixing bracket including:

a support member for attachment to a substrate comprising a channel running therethrough;

first and second cantilever arms extending from the support member in opposing directions, each cantilever arm including fibre engagement means for engaging with the optical fibre;

the apparatus further comprising a substrate including support means for receiving the support members so as to dispose the first and second fixing brackets such that the fibre engagement means of the first fixing bracket oppose the fibre engagement means of the second fixing bracket, for receiving and supporting an optical fibre therebetween at two

longitudinal positions of the optical fibre;

~~The apparatus of claim 10 in which~~ wherein the support means ~~comprise~~ comprises a pair of blocks each adapted to engage with the respective channel of a respective support member.

13. (Original) The apparatus of claim 11 in which the fibre engagement means comprises a finger extending laterally from each one of the first and second cantilever arms.

14. (Original) The apparatus of claim 13 in which each finger includes an engagement surface for coupling to a wall of the optical fibre.

15. (Original) The apparatus of claim 1 in which each of the cantilever arms is plastically deformable.

16. (Previously presented) The apparatus of Claim 1 further including an optical fibre positioned between and supported by the fibre engagement means.

17. (Original) The apparatus of claim 16 in which the optical fibre is coupled to an engagement surface of each of the respective fibre engagement means by way of a spot weld.

18. (Original) The apparatus of claim 16 in which the optical fibre includes a sleeve encasing an optical carrier.

19. (Previously presented) The apparatus of Claim 1 further including an optical source fixed directly to the substrate or to an intermediate support means attached to the substrate.

20. (Original) The apparatus of claim 1 in which the first and second fixing brackets are formed from a metal suitable for welding.

21. (Original) The apparatus of claim 1 in which the substrate is formed from a metal suitable for welding.

22. (Original) The apparatus of claim 1 in which the support means are formed from a metal suitable for welding.

23. (Original) The apparatus of claim 19 in which the optical source is a semiconductor laser diode.

24-31. (Cancelled).

32. (Currently Amended) A method for aligning and fixing an optical fibre relative to an optical source comprising the steps of:

positioning first and second fixing brackets cantilevered in the direction of the fibre on a substrate such that first and second fibre engagement means of the first fixing bracket oppose first and second fibre engagement means of the second fixing bracket;

positioning an optical fibre intermediate the first and second fixing brackets for support therebetween at two longitudinal positions of the fibre;

securing the first and second fixing brackets to the optical fibre at the points of contact of the fibre engagement means to the fibre; and

adjusting the fibre alignment relative to the optical source, by adjusting the cantilevered fixing brackets.

33. (Original) The method of claim 32 further including the steps of, after positioning the optical fibre,

aligning the fibre to the optical source;

securing the first and second fixing brackets to support means included on the substrate.

34. (Currently amended) A method for aligning and fixing an optical fibre relative to an optical source comprising the steps of:

positioning first and second fixing brackets on a substrate such that first and second fibre engagement means of the first fixing bracket oppose first and second fibre engagement means of the second fixing bracket;

positioning an optical fibre intermediate the first and second fixing brackets for support therebetween at two longitudinal positions of the fibre;

securing the first and second fixing brackets to the optical fibre at the points of contact of the fibre engagement means to the fibre; and

adjusting the fibre alignment relative to the optical source ~~The method of~~
claim 32 in which the ~~step of adjusting the fibre alignment comprises~~ comprising the steps of:

distorting a first cantilever arm of each of the first and second fixing
brackets;

generating a resultant distortion in a second cantilever arm of each of the
first and second fixing brackets in response to the distortion in the first cantilever arm; and

correcting the alignment of the optical fibre as a consequence of the
cantilever arm distortions.

35. (Original) The method of claim 34 in which the first cantilever arm of the first and
second fixing brackets is distorted using a manipulator.

36. (Original) The method of claim 34 in which the second cantilever arm of the first and
second fixing brackets responds to the distortion in the first cantilever arm of the first and second
fixing brackets through plastic deformation of the support member of the first and second fixing
brackets disposed therebetween.

37. (Original) The method of claim 34 in which the amount of distortional movement of
the second cantilever arm of the first and second fixing brackets is attenuated compared to the
distortional movement of the first cantilever arm of the first and second fixing bracket.

38. (Original) The method of claim 34 in which the rigidity of the first cantilever arm

along the length of the arm is different to the rigidity of the second cantilever arm along the length of the arm.

39-42. (Cancelled).